

149. A method according to claim 147, wherein said increased binding energy hydrogen species comprises at least one selected from the group consisting of a proton, ordinary hydride ion, ordinary hydrogen atom, ordinary hydrogen molecules, ordinary hydrogen molecular ions and ordinary  $H_3^+$ .

B2

$$\text{Binding Energy} = \frac{\hbar^2 \sqrt{s(s+1)}}{8\mu_e a_0^2 \left[ \frac{1 + \sqrt{s(s+1)}}{p} \right]^2} - \frac{\pi\mu_e e^2 \hbar^2}{m_e^2 a_0^3} \left( 1 + \frac{2^2}{\left[ \frac{1 + \sqrt{s(s+1)}}{p} \right]^3} \right)$$

150. A method according to claim 147, wherein said increased binding energy hydrogen species comprises at least one element selected from the group consisting of alkaline earth metals and alkali metals.

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#### REMARKS

Reconsideration and allowance of the subject application are respectfully requested.

Claims 1-271 are pending in the application.

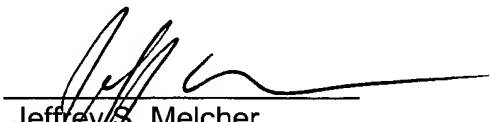
The claims have been amended only to correct minor typographical errors relating to their dependency. No claims have been amended to overcome prior art. No new matter has been added. An explanation of the amendment is attached herewith.

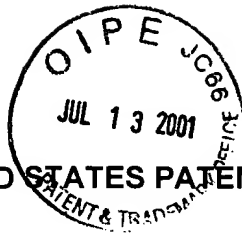
Entry of this amendment is respectfully requested.

Respectfully submitted,

Manelli Denison & Selter PLLC

By

  
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT APPLICATION of  
Inventor(s): Mills

Group Art Unit: 1745

Appln. No.: 09/501,261

Examiner: Langel

Filing Date: 02/02/2000

Att. Docket No.: 62-226-8AC4-D1

Title: DOPED THERMIONIC CATHODE AND METHOD OF MAKING THE DOPED  
THERMIONIC CATHODE

\* \* \* \* \*

July 13, 2001

EXPLANATION OF SUPPLEMENTAL AMENDMENT

Hon. Asst. Commissioner  
of Patents and Trademarks  
Washington, D.C. 20231

RECEIVED  
JUL 17 2001  
TC 1700

Sir:

The claims have been amended as shown by insertion and [deletion].

65. (Amended) A doped thermionic cathode according to claim [65] 64, wherein said doubly negatively charged anion is selected from the group consisting of carbonate ions and sulfate ions.

66. (Amended) A doped thermionic cathode according to claim [65] 64, wherein said singly negatively charged anion is selected from the group consisting of halogen ions, hydroxide ions, hydrogen carbonate ions, and nitrate ions.

148. (Amended) A method according to claim [148] 147, wherein said increased binding energy hydrogen species is selected from the group consisting of  $H_n$ ,  $H_n^-$ , and  $H_n^+$ , where n is an integer of 1 to 8, and n is greater than 1 when H has a positive charge.

149. (Amended) A method according to claim [148] 147, wherein said increased binding energy hydrogen species comprises at least one selected from the group consisting of a proton, ordinary hydride ion, ordinary hydrogen atom, ordinary hydrogen molecules, ordinary hydrogen molecular ions and ordinary  $H_3^+$ .

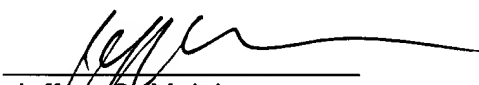
$$\text{Binding Energy} = \frac{\hbar^2 \sqrt{s(s+1)}}{8\mu_e a_0^2 \left[ \frac{1 + \sqrt{s(s+1)}}{p} \right]^2} - \frac{\pi\mu_e e^2 \hbar^2}{m_e^2 a_0^3} \left( 1 + \frac{2^2}{\left[ \frac{1 + \sqrt{s(s+1)}}{p} \right]^3} \right)$$

150. (Amended) A method according to claim [148] 147, wherein said increased binding energy hydrogen species comprises at least one element selected from the group consisting of alkaline earth metals and alkali metals.

Respectfully submitted,

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